

TABLE III.—*Data furnished by the Canadian Meteorological Service, June, 1919.*

Stations.	Altitude above mean sea level, Jan. 1, 1919.	Pressure.			Temperature of the air.						Precipitation.		
		Station reduced to mean of 24 hours.	Sea level reduced to mean of 24 hours.	Departure from normal.	Mean max. + mean min. + 2.	Departure from normal.	Mean maximum.	Mean minimum.	Highest.	Lowest.	Total.	Departure from normal.	Total snowfall.
St. Johns, N. F.	125	29.91	30.05	+0.14	47.9	-3.7	56.9	39.0	70	28	4.08	+0.48	.....
Sydney, C. B. I.	48	30.07	30.11	+0.16	55.2	-0.2	66.7	43.6	84	34	2.66	-0.57	.....
Halifax, N. S.	88	30.00	30.11	+0.16	57.8	+0.1	67.8	47.8	87	34	2.68	-1.08	.....
Yarmouth, N. S.	95	30.03	30.10	+0.15	56.4	+1.4	65.1	47.7	78	37	1.75	-1.01	.....
Charlottetown, P. E. I.	38	30.05	30.09	+0.17	57.6	+0.2	66.8	48.4	81	36	2.31	-0.36	.....
Chatham, N. B.	28	30.07	30.10	+0.21	61.1	+1.1	73.4	48.9	92	38	1.87	-1.59	.....
Father Point, Que.	20	30.04	30.06	+0.19	54.4	+1.4	63.5	45.3	76	33	2.84	-0.14	.....
Quebec, Que.	298	29.79	30.11	+0.19	65.8	+4.6	76.8	54.8	92	40	2.81	-0.64	.....
Montreal, Que.	187	29.89	30.09	+0.15	68.7	+3.8	78.3	59.1	92	43	4.17	+0.64	.....
Stonecliffe, Ont.	489	29.48	30.08	+0.14	62.7	+1.1	84.5	40.9	98	26	5.08	+1.92	.....
Ottawa, Ont.	236	29.84	30.10	+0.16	70.9	+5.6	82.6	59.2	96	45	2.96	+0.04	.....
Kingston, Ont.	285	29.79	30.10	+0.13	70.0	+6.6	78.3	61.7	91	48	3.48	+1.05	.....
Toronto, Ont.	379	29.65	30.07	+0.10	72.4	+9.0	83.4	61.3	94	47	2.72	-0.08	.....
Cochrane, Ont.	930				67.6		81.8	53.4	92	31	0.48		.....
White River, Ont.	1,244	28.79	30.07	+0.13	64.6	+5.9	79.4	49.9	91	26	1.09	-1.13	.....
Port Stanley, Ont.	592	29.45	30.08	+0.11	70.4	+6.6	80.8	60.0	90	44	1.87	-0.86	.....
Southampton, Ont.	656	29.39			69.2	+8.8	79.2	59.3	93	42	1.24	-1.11	.....
Parry Sound, Ont.	688	29.43	30.11	+0.15	72.0	+10.3	85.0	59.0	97	42	1.66	-0.76	.....
Port Arthur, Ont.	644	29.40	30.12	+0.18	62.0	+5.6	70.8	53.2	87	40	1.18	-1.55	.....
Winnipeg, Man.	760	29.17	29.99	+0.10	67.9	+5.7	78.6	56.2	89	35	4.95	+1.66	.....
Minnedosa, Man.	1,690	28.21	29.99	+0.10	64.4	+4.8	77.0	51.8	87	28	3.36	+0.36	.....
Le Pas, Man.	860				65.0		77.2	52.8	92	35	3.58		.....
Qu'Appelle, Sask.	2,115	27.72	29.93	+0.06	65.7	+5.8	80.0	51.4	94	33	2.95	-0.47	.....
Medicine Hat, Alb.	2,144	27.60	29.81	-0.04	69.2	+7.2	84.1	54.3	103	33	0.81	-1.95	.....
Moose Jaw, Sask.	1,759				68.1		84.3	51.9	101	25	3.24		.....
Swift Current, Sask.	2,392	27.37	29.94	+0.07	66.5	+6.5	82.7	50.4	95	21	0.56	-2.11	.....
Calgary, Alb.	3,423	26.41	29.92	+0.08	59.6	+3.8	77.4	41.9	94	27	0.29	-2.16	.....
Banff, Alb.	4,521	25.39	29.90	+0.06	53.4	+1.9	68.9	38.0	89	26	1.02	-2.31	0.5
Edmonton, Alb.	2,150	27.60	29.85	+0.01	57.8	+0.9	72.2	43.5	89	30	0.87	-1.99	.....
Prince Albert, Sask.	1,450	28.37	29.92	+0.05	64.7	+7.0	78.7	50.7	93	30	2.10	-0.41	.....
Battleford, Sask.	1,502	28.17	29.88	+0.02	64.6	+5.1	79.9	49.3	87	24	1.32	-1.99	.....
Kamloops, B. C.	1,262	28.75	30.04	+0.17	61.6	-2.2	74.8	48.4	96	39	0.67	-0.75	.....
Victoria, B. C.	230	29.83	30.09	+0.08	54.4	-1.9	61.8	47.0	70	43	0.53	-0.67	.....
Barkerville, B. C.	4,180	25.72	30.02	+0.15	46.3	-4.4	57.5	35.1	77	30	3.78	+0.30	11.2
Triangle Island, B. C.	680												
Prince Rupert, B. C.	170												
Hamilton, Ber.	151	29.98	30.14	+0.02	73.1	-1.9	78.4	67.8	83	63	2.82	-3.13	.....

SEISMOLOGY.

W. J. HUMPHREYS, Professor in Charge.

[Dated: Weather Bureau, Washington, D. C., Aug. 2, 1919.]

TABLE I.—*Noninstrumental earthquake reports, June, 1919.*

Day.	Approximate time, Greenwich Civil.	Station.	Approximate latitude.	Approximate longitude.	Intensity Rossi-Forel.	Number of shocks.	Duration.	Sounds.	Remarks.	Observer.
CALIFORNIA.										
June 21	6 55	Lone Pine.....	36 37	118 01	3	1	Sec.	None.....		G. F. Marsh
21	19 58	Lone Pine.....	36 37	118 01	5	1	Several	Loud rumbling.....	Furniture moved.....	G. F. Marsh
24	21 12	San Diego.....	32 43	117 10	4	2	1	None.....	Buildings shaken.....	H. F. Alciatore
24	23 24	Lone Pine.....	36 37	118 01	5	1	25	None.....	Felt by many.....	G. F. Marsh

MONTHLY WEATHER REVIEW.

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TABLE 2.—*Instrumental reports, June, 1919.*

Date.	Character.	Phase.	Time.	Period. T.	Amplitude.		Dis-tance.	Remarks.
					A. E.	A. N.		

Alabama. Mobile. Spring Hill College. Earthquake Station. Cyril Ruhlmann, S. J.

Lat., $30^{\circ} 41' 44''$ N.; long., $88^{\circ} 08' 46''$ W. Elevation, 60 meters.
Instrument: Wiechert 80 kg.; astatic, horizontal pendulum.

(No earthquake recorded during June, 1919.)

Alaska. Sitka. Magnetic Observatory. U. S. Coast and Geodetic Survey. F. P. Ulrich.

Lat., $57^{\circ} 03' 00''$ N.; long., $135^{\circ} 30' 06''$ W. Elevation, 15.2 meters.
Instruments: Two Bosch-Omori, 10 and 12 kg.

Instrumental constants. $\begin{cases} E & V \\ N & 10 \end{cases}$ $\begin{cases} T_0 \\ 17.7 \\ 16.6 \end{cases}$

(No earthquake recorded during June, 1919.)

Arizona. Tucson. Magnetic Observatory. U. S. Coast and Geodetic Survey. Wm. H. Cullum.

Lat., $32^{\circ} 14' 48''$ N.; long., $110^{\circ} 50' 06''$ W. Elevation, 769.6 meters.
Instruments: Two Bosch-Omori, 10 and 12 kg.

Instrumental constants. $\begin{cases} E & V \\ N & 10 \end{cases}$ $\begin{cases} T_0 \\ 14 \\ 18 \end{cases}$

1919.		P _N	H. m. s.	Sec.	μ	μ	Km.	Trace on E.-W.
June 29		P _N	0 55 41	3	.....	.....	.....	.....
		L _N	0 57 50	.....	.....	.....	.....	.....
		M _N	0 58 00	8	.....	.....	20	.....
		C _N	0 59 45	6	.....	.....	.....	.....
		R _N	1 02	.....	.....	.....	.....	.....
		eP	23 26 00	.....	.....	.....	.....	.....
		S _N	23 30 54	.....	.....	.....	.....	.....
		eN	23 34 30	.....	.....	.....	.....	.....
		eL _N	23 39	.....	.....	10	.....	.....
		F _N	23 52	.....	.....	.....	.....	.....

California. Berkeley. University of California.

Lat., $37^{\circ} 52' 16''$ N.; long., $122^{\circ} 15' 37''$ W. Elevation, 85.4 meters.

(See Bulletin of the Seismographic Stations, University of California.)

California. Mount Hamilton. Lick Observatory.

Lat., $37^{\circ} 20' 24''$ N.; long., $121^{\circ} 38' 34''$ W. Elevation, 1,281.7 meters.

(See Bulletin of the Seismographic Stations, University of California.)

California. Point Loma. Raja Yoga Academy. F. J. Dick.

Lat., $32^{\circ} 43' 03''$ N.; long., $117^{\circ} 15' 10''$ W. Elevation, 91.4 meters.

Instrument: Two-component, C. D. West seismoscope.

1919.			H. m. s.	Sec.	*100	*100	Km.	Tremor during 24 hours preceding 15h. 00m.
June 13			21 11 30	.....	*200	*300	.....	Light shock about 2 sec.
24					*200	*300	.....	Tremors during 24 hours preceding 15h. 00m. on date given.
26					*100	*100	.....
30							.....

*Amplitude on instrument.

Date.	Char- acter.	Phase.	Time.	Period. T.	Amplitude.		Dis-tance.	Remarks.
					A. E.	A. N.		

California. Santa Clara. University of Santa Clara. J. S. Ricard, S. J.

Lat., $37^{\circ} 26' 36''$ N.; long., $124^{\circ} 57' 03''$ W. Elevation, 27.43 meters.

(See record of the Seismographic Station, University of Santa Clara.)

Colorado. Denver. Sacred Heart College. Earthquake Station. A. W. Forstall, S. J.

Lat., $39^{\circ} 40' 36''$ N.; long., $104^{\circ} 56' 54''$ W. Elevation, 1,655 meters.

Instrument: Wiechert 80-kg., astatic, horizontal pendulum.

Instrumental constants

1919.			H. m. s.	Sec.	μ	μ	Km.	Active on both components. Weaker on E.-W. Visible activity on N.-W. at intervals during the day. Visible waves.
June 10			L _N	7 00 00	.....	.....	.....	.....
			F _N	11 30 00	.....	.....	.....	.....
14					.....	.....	.....	.....
19			L _N	2 30 00	.....	.....	.....	.....
			F _N	4 45 00	.....	.....	.....	.....

District of Columbia. Washington. U. S. Weather Bureau.

Lat., $38^{\circ} 54' 12''$ N.; long., $77^{\circ} 03' 03''$ W. Elevation, 21 meters.

Instrument: Marvin (vertical pendulum), undamped. Mechanical registration.

Instrumental constants. $V = 110$ $T_0 = 6.4$

1919.		eE	H. m. s.	Sec.	μ	μ	km.	Very feeble quake.
June 15		eF	10 23 ..	.....	.....	.....	.....	.....
		P	10 30 ..	.....	.....	.....	3,000	.....
20		S	23 20 06	.....	.....	.....	.....	.....
		J	23 24 48	.....	.....	.....	.....	.....
		L	23 27 26	.....	.....	.....	.....	.....
		IS	23 29 30	24	.....	.....	.....	.....
30		F	0 10 ..	.....	.....	.....	.....	.....

District of Columbia. Washington. Georgetown University.

F. A. Tondorf, S. J.

Lat., $38^{\circ} 51' 25''$ N.; long., $77^{\circ} 01' 21''$ W. Elevation, 42.4 meters. Subsoil: Decayed dolomite.

Instruments: Wiechert 200 kg. astatic horizontal pendulums, 80 kg. vertical.

Instrumental constants. $V = 165$ $T_0 = 5.4$ $\epsilon = 0$
 $Z = 143$ $T_0 = 5.2$ $\epsilon = 0$
 $W = 89$ $T_0 = 3.0$ $\epsilon = 0$

1919.			H. m. s.	Sec.	μ	μ	km.	Heavy microseisms. Doubtful seismic origin.
June 29		e	15 17 29	.....	.....	.....	.....	.....
		IE?	15 21 46	.....	.....	.....	.....	.....
		IN	15 21 48	.....	.....	.....	.....	.....
		F	16 ca	.....	.....	.....	.....	.....
29		eP	23 20 08	.....	.....	.....	.....	Heavy microseisms.
		IS	23 24 48	.....	.....	.....	.....	On Bosch photographic machine, 23° 27' 36".
		eL?	23 26 30	11	.....	.....	.....	Very doubtful.
		MEL	23 27 07	11	*1,700	.....	.....	.....
		ME2	23 30 41	16	*1,400	.....	.....	.....
		F?	1 +	.....	.....	.....	.....	.....
							Az.	.....
29		eP	23 20 08	.....	.....	.....	.....	Heavy microseisms.
		eS	23 24 40	.....	.....	.....	.....	.....
		eL	23 26 24	11	.....	.....	.....	.....
		M	23 31 13	16	*3,000	.....	.....	.....
		F	1 +	.....	.....	.....	.....	.....

* Trace amplitude.

TABLE 2.—Instrumental reports, June, 1919—Continued.

Date.	Character.	Phase.	Time.	Period. T.	Amplitude.		Distance.	Remarks.	Date.	Character.	Phase.	Time.	Period. T.	Amplitude.		Distance.	Remarks.							
					A _S .	A _N .								A _S .	A _N .									
Hawaii. Honolulu. Magnetic Observatory. U. S. Coast and Geodetic Survey. Frank Neumann.									Illinois. Chicago. University of Chicago. U. S. Weather Bureau.															
Lat., 21° 19' 12" N.; long., 158° 03' 48" W. Elevation, 15.2 meters.									Lat., 41° 47' N., long., 87° 37' W. Elevation, 180.1 meters.															
Instrument: Milne seismograph of the Seismological Committee of the British Association.									Instruments: Two Milne-Shaw horizontal pendulums, 0.45 kg.															
$T_0 = 18.4$ sec. Sensitivity 0.40 arc tilt=1 mm.									Instrumental constants. $\frac{V}{N} = 150$, $\frac{T_0}{S} = 12$, $\frac{\epsilon}{T_0} = 20:1$, $\frac{1'' \text{ arc tilt}}{1'' \text{ arc tilt}} = 26.6 \text{ mm}$, $\frac{1'' \text{ arc tilt}}{1'' \text{ arc tilt}} = 13.2 \text{ mm}$.															
June 1					H. m. s.	Sec.	μ	μ	1919, June 1															
10		L.	7 10 30			15	*300		iP.....	H. m. s.	Sec.	μ	μ	km.										
	M.	7 11 48				19			S.....	7 15 45														
	C.	7 16 ..				19			L.....	7 24 37														
	F.	7 41 ..				18			L.....	7 34 ..														
	eP	20 30 36							F.....	8 15 ..														
15	L.	20 37 ..							4	eE.....	9 46 ..													
	M.	20 44 00				19	*300		eL.....	9 51 30														
	C.	20 50 ..				20			L.....	9 57 ..		15												
	F.	20 58 ..							F.....	10 30 ..														
	L.	19 43 ..							9	eL.....	7 55 ..													
	M.	19 45 18				18	*100		F.....	8 20 ..														
24	F.	19 48 ..							12	eL.....	11 49 ..													
	L.	19 26 ..				18	*100		L.....	11 52 ..		18												
	M.	19 35 ..							F.....	12 13 ..														
26	L.	2 10 30							15	e.....	10 16 30													
	M.	2 11 54							L.....	10 31 ..														
	F.	2 13 ..							F.....	10 45 ..														
28	eP	5 13 ..							29	P.....	0 51 00													
	L.	5 25 48							S.....	0 55 43														
	M.	5 29 06				18	*200		L.....	1 01 38														
	C.	5 33 ..							F.....	1 30 ..														
	F.	5 54 ..							29	P.....	15 26 04													
29	P.	23 25 18				18			S.....	15 30 41														
	eS	23 34 42							L.....	15 38 20		24												
	eL	23 45 24							F.....	15 46 00														
	M.	23 49 18				17	*300		29	P.....	23 20 15													
	M.	23 51 54							S.....	23 24 55														
	C.	24 02 ..				20			L?....	23 27 20														
	F.	25 12 ..				19			L.....	23 30 00		30												
30	eP	8 43 ..							F.....	23 40 00		16												
	eJ	9 08 30							30	P.....	1 30 ..													
	M.	9 15 00				20	*200		S.....	7 50 43														
	C.	9 19 18				20			eL.....	7 55 18														
	F.	9 51 ..				18			L.....	7 59 10														
									L.....	8 23 00		22												
									F.....	8 32 00		16												
										10 20 ..														

* Trace amplitude.

Difficult to identify because of tremors.

TABLE 2.—*Instrumental reports, June, 1919—Continued.*

Date.	Character.	Phase.	Time.	Period. T.	Amplitude.		Dis- tance.	Remarks.
					A.s.	A.w.		

Kansas. Lawrence. University of Kansas. Department of Physics and Astronomy. F. E. Kester.

Lat., 38° 57' 30" N.; long., 95° 14' 58" W. Elevation, 301.1 meters.

Instrument: Wiechert.

$$\text{Instrumental constants. } \begin{cases} V & T_0 & \epsilon \\ E & 177 & 3.4 & 4:1 \\ N & 205 & 3.4 & 4:1 \end{cases}$$

(Report for June, 1919, not received.)

Maryland. Cheltenham. Magnetic Observatory. U. S. Coast and Geodetic Survey. George Hartnell.

Lat., 38° 44' 00" N.; long., 76° 50' 30" W. Elevation, 71.6 meters.

Instruments: Two Bosch-Omori, 10 and 12 kg.

$$\text{Instrumental constants. } \begin{cases} V & T_0 \\ E & 10 & 15 \\ N & 10 & 15 \end{cases}$$

1919 June 29		P.....	H. m. s.	Sec.	μ	μ	km. 2,970	L difficult to determine.	$V \quad T_0 \quad \epsilon$	
									P _E	P _N
		P.....	23 20 14	3	.....	.....	.....		23 17 14	.....
		IS _E	23 24 55	14	.....	.....	.....		23 17 20	.....
		S _E	23 24 54	12	.....	.....	.....		23 18 58	.....
		eL _E	23 29 20	22	.....	.....	.....		23 19	.....
		eL _N	23 31 20	.....	.....	.....	.....		23 20 12	.....
		M _E	23 30 47	14	280	.....	.....		23 20 20	.....
		M _N	23 33 46	16	.....	280	.....			.....
		C _E	23 35 ..	13	.....	.....	.....			86,500
		C _N	23 44 ..	10	.....	.....	.....			86,500
30		F _E	0 17 ..	10	.....	.....	.....
		F _N	0 18 ..	10	.....	.....	.....

Massachusetts. Cambridge. Harvard University Seismographic Station J. B. Woodworth.

Lat., 42° 22' 38" N.; long., 71° 06' 59" W. Elevation, 5.4 meters. Foundation: Glacial sand over clay.

Instruments: Two Bosch-Omori 100 kg. horizontal pendulums (mechanical registration).

$$\text{Instrumental constants. } \begin{cases} V & T_0 & \epsilon \\ E & 80 & 23 & 0 \\ N & 50 & 25 & 4:1 \end{cases}$$

(Report for June, 1919, not received.)

Missouri. Saint Louis. St. Louis University. Geophysical Observatory. J. B. Goesse, S. J.

Lat., 38° 38' 15" N.; long., 90° 12' 58" W. Elevation, 160.4 meters. Foundation: 12 feet of tough clay over limestone of Mississippi system, about 300 feet thick.

Instrument: Wiechert 80 kg. astatic, horizontal pendulum.

$$\text{Instrumental constants. } \begin{cases} V & T_0 & \epsilon \\ E & 80 & 7 & 5:1 \\ N & 50 & 10 & 1 \end{cases}$$

(Report for June, 1919, not received.)

New York. Ithaca. Cornell University. Heinrich Ries.

Lat., 42° 20' 58" N.; long., 76° 20' 09" W. Elevation, 243.6 meters.

Instruments: Two Bosch-Omori, 25 kg., horizontal pendulums (mechanical registration).

$$\text{Instrumental constants. } \begin{cases} V & T_0 & \epsilon \\ E & 13 & 22 & 4:1 \\ N & 14 & 25 & 4:1 \end{cases}$$

(Report for June, 1919, not received.)

Date.	Character.	Phase.	Time.	Period. T.	Amplitude.		Dis- tance.	Remarks.
					A.s.	A.w.		

New York. New York. Fordham University. D. H. Sullivan, S. J.

Lat., 40° 51' 47" N.; long., 73° 53' 08" W. Elevation, 23.9 meters.

Instrument: Wiechert, 80 kg.

$$\text{Instrumental constants. } \begin{cases} V & T_0 & \epsilon \\ E & 72 & 5.0 & 0 \\ N & 72 & 5.0 & 0 \end{cases}$$

(Report for June, 1919, not received.)

Panama Canal Zone. Balboa Heights. Isthmian Canal Commission.

Lat., 8° 57' 39" N.; long., 79° 33' 29" W. Elevation, 27.6 meters.

Instruments: Two Bosch-Omori, 25 kg.

$$\text{Instrumental constants. } \begin{cases} V & T_0 \\ E & 10 & 20 \\ N & 10 & 20 \end{cases}$$

1919 June 29		P.....	H. m. s.	Sec.	μ	μ	Km.	Local; felt at Hu- macao, P. R.		
									P _E	P _N
		P.....	23 17 14	.....	.....	.....	.....
		S.....	23 17 20	.....	.....	.....	.....
		S.....	23 18 58	.....	.....	.....	.....
		S.....	23 19	.....	.....	.....	.....
		L.....	23 20 12	.....	.....	.....	.....
		L.....	23 20 20	.....	.....	.....	.....
		M.....	23 21 56	.....	.....	.....	86,500			
		M.....	23 25 16	.....	.....	.....	86,500			
		F.....	23 45 ..	.....	.....	.....	.....
		F.....	.....	.....	.....	.....	.....

*Trace amplitude.

Porto Rico. Vieques. Magnetic Observatory. U. S. Coast and Geodetic Survey. W. M. Hill.

Lat., 18° 00' N.; long., 65° 27' W. Elevation, 19.8 meters.

Instruments: Two Bosch-Omori.

$$\text{Instrumental constants. } \begin{cases} V & T_0 \\ E & 10 & 17 \\ N & 10 & 19 \end{cases}$$

1919 June 28		P.....	H. m. s.	Sec.	μ	μ	Km.	Local; felt at Hu- macao, P. R.		
									P _E	P _N
		P.....	1 45 39	2	.....	.....	.....
		P.....	1 45 40	2	.....	.....	.....
		M.....	1 46 10	.....	.....	80	.....		
		M.....	1 46 14	.....	.....	.....	120			
		F.....	1 51 ..	3	.....	.....	.....
		eP.....	23 19 12	4	.....	.....	.....
		eP.....	23 19 27	.....	.....	.....	.....
		PR.....	23 19 35	.....	.....	.....	.....
		PR.....	23 19 52	.....	.....	.....	.....
		S.....	23 23 11	12	.....	.....	.....
		S.....	23 23 43	.....	.....	.....	.....
		eL.....	23 25 26	.....	.....	.....	.....
		eL.....	23 27 07	.....	.....	.....	.....
		M.....	23 29 40	17	.....	160	.....		
		M.....	23 30 01	19	.....	.....	320			
		C.....	23 31 ..	14	.....	.....	.....
		C.....	23 34 ..	18	.....	.....	.....
		F.....	23 44 ..	13	.....	.....	.....
		F.....	23 50 ..	13	.....	.....	.....

Vermont. Northfield. U. S. Weather Bureau. Wm. A. Shaw.

Lat., 44° 10' N.; long., 72° 41' W. Elevation, 256 meters.

Instruments: Two Bosch-Omori, mechanical registration.

$$\text{Instrumental constants. } \begin{cases} V & T_0 \\ E & 10 & 15 \\ N & 10 & 16 \end{cases}$$

1919 June 29		P.....	H. m. s.	Sec.	μ	μ	Km.	Local; felt at Hu- macao, P. R.		
									P _E	P _N
		P.....	23 21 00	.....	.....	.....	.....
		S.....	23 26 20	.....	.....	.....	.....
		S.....	23 29 16	.....	.....	.....	.....
		L.....	23 34 ..	20	.....	.....	.....
		L.....	24 00 ..	.....	.....	.....	.....

TABLE 2.—Instrumental reports, June, 1919—Continued.

Date.	Character.	Phase.	Time.	Period. T.	Amplitude.		Dis- tance.	Remarks.
					A _S .	A _N .		

Canada. Ottawa. Dominion Astronomical Observatory. Earthquake Station. Otto Klotz.

Lat., $45^{\circ} 23' 38''$ N.; long., $75^{\circ} 42' 57''$ W. Elevation, 83 meters.

Instruments: Two Bosch photographic horizontal pendulums, one Spindler & Hoyer 80K. vertical seismograph.

V T_g
Instrumental constants..120 26

1919 June 29		i.	H. m. s.	Sec.	μ	μ	Km.	Very small amplitudes. Small microseisms prevent the reading of P. Italian quake reported in press.
			0 57 54					
	e.	{ 1 07 18						
		{ 1 20 ..		7.5				
	F.	1 40 ..						
	O.	15 08 06					6,600	
	P _N	15 18 10						
	eP _{RIN}	15 18 40						
	eS _N	15 24 18						
	eL	15 34 30	22					
	F.	15 50 ..						
	O.	23 14 14					3,500	
	iP	23 21 01						
	IS	23 26 24						
	L.	23 31 30						
	L.	23 35 ..	20					
	L.	23 46 ..	12					
	L.	0 15 ..	12					
	F.	0 35 ..						
	eN?	7 48 30						
	e.	7 51 18						
	eL	{ 8 15 ..	20					
		{ 9 00 ..	15					
	F.	9 05 ..						

Canada. Toronto. Dominion Meteorological Service.

Lat., $43^{\circ} 40' 01''$ N.; long., $79^{\circ} 23' 54''$ W. Elevation, 113.7 meters. Subsoil: Sand and clay.

Instrument: Milne horizontal pendulum, North; in the meridian.

T_g
Instrumental constant..18. Pillar deviation, 1 mm. swing of boom=0.45".

June 2		L.	6 59 18				Doubtful as to being seismic.
			M.	6 59 48	*200		
10		F.	7 03 08				
		L.	20 57 54				
15		M.	20 58 36	*100			
		F.	21 03 48				
15		M?	16 17 54	*100			
		L.	18 05 36				
29		M.	1 03 18	*100			
		L.	11 12 00	*100			
29		L.	15 39 48				
		L.	15 42 30				
29		M.	15 43 36	*100			
		F.	15 50 12				
29		P?	23 21 54			2,830?	
		S.	23 26 24				
30		IS	23 29 42				
		I.	23 30 24				
30		L.	23 32 12				
		M.	23 33 24	*2,100			
30		IL	23 34 24				
		F.	0 30 24				
30		S.	8 22 30				
		eL	8 32 48				
30		M.	8 45 12	*200			
		F.	9 10 12				

* Trace amplitude.

Date.	Char- acter.	Phase.	Time.	Period. T.	Amplitude.		Dis- tance.	Remarks.
					A _S .	A _N .		

Canada. Victoria, B. C. Dominion Meteorological Service. Lat., $48^{\circ} 24'$ N.; long., $123^{\circ} 10'$ W. Elevation, 67.7 meters. Subsoil: Rock. Instruments: Wiechert, vertical; Milne horizontal pendulum, North. In the meridian. T_0 Instrumental constant..18. Pillar deviation, 1 mm. swing of boom=0.54".

June 2		P. M.	7 13 13 7 14 02					May not be a quake.
10		L? M. F.	21 03 00 21 09 24 21 14 29					
11		M?	6 55 09					May not be a quake.
14		M.	8 01 32					
15		L? M. F.	16 25 24 16 27 23 16 30 51					
15		P?	17 44 14 17 46 13 17 50 11					
29		P or L. M. F.	1 06 00 1 06 59 1 12 53					
29		M.	15 51 48					
29		P? SI. L. M.	23 22 19 23 28 42 23 38 03 23 48 12					
30		F.	00 46 14					
30		M. F.	8 44 00 9 19 44					

* Trace amplitude.

SEISMOLOGICAL DISPATCHES.¹

Seattle, Wash., June 5, 1919.

What seemingly was an earth disturbance gave buildings in Seattle a slight shaking up to-night. The disturbance was felt as far as 45 miles from here. (Associated Press.)

Florence, Italy, June 29, 1919.

A violent earthquake shock was felt here this afternoon at 5:30 o'clock and reports state that neighboring towns were also shaken. So far as known only slight damage was done. (Associated Press.)

Florence, Italy, June 29, 1919.

Additional advice shows that damage was done by the earthquake of to-day. The tremor was sharp, people rushing from houses in panic. The damage in this city was slight.

Rome, Italy, June 30, 1919.

One hundred and twenty persons are estimated to have been killed in and near Vicchio, the center of the earth movements Sunday, in the Florence district, according to the Tempo. The town of Vicchio was reduced to a heap of ruins and a number of the villages were destroyed. (Associated Press.)

¹ Reported by the organization indicated and collected by the seismological station at Georgetown University, Washington, D. C.